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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,518

12/12/2003

Alex T. Fensore III

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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/734,518

Applicant(s)

FENSORE, ALEX T.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/19/05.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14 and 40-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 40 and 43 recite "[t]he electrochemical cell of claim 34," however claim 34 is directed to a process. Correction is required.

Further, claim 14 recites "said second electrolyte," but this limitation lacks antecedent basis. Correction is also required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-11 and 34-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Randell et al (U.S. Patent 5,378,559). The reference is directed to a zinc alkaline cell comprising a phosphate ester additive. The cell comprises a first electrode and a separator, and a second, inner electrode comprising zinc, a gelling agent, the phosphate ester additive, and an alkaline electrolyte (see col. 4, line 59). The phosphate ester comprises a monoester and diester (see col. 4, line 20), and corresponds to the claimed "rheological modifier." Regarding the yield stress and viscosity ranges recited in the instant claims, the anode of Randell et al. would inherently possess these characteristics. It is noted that in the instant application, a rheological modifier comprising 50% monoester, 30% diester and 3% phosphoric acid is disclosed as suitable for use in the invention (see [0030] of the instant specification). The additive of Randell et al. is very similar to the composition disclosed as usable as a rheological modifier, and as such, the use of the additive would inherently result in the anode having the claimed properties. See MPEP 2112.

5. Claims 1-11, 15-18, 22, and 34-45 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 03/73530. The reference is directed to a zinc alkaline cell comprising a surfactant additive containing sulfonic acid and phosphate ester. The cell comprises a first electrode and a separator, and a second, inner electrode comprising zinc, a gelling agent, the additive, and an alkaline electrolyte. The phosphate ester corresponds to the claimed

“rheological modifier” and is present in an amount of 4-75 ppm with respect to zinc, thereby anticipating the ranges recited in claims 15-18. Regarding claim 22, approximately 10% of the zinc powder is sized to pass through a 200 mesh screen (see [0045]). Regarding the yield stress and viscosity ranges recited in the instant claims, the anode of WO ‘530 would inherently possess these characteristics. It is noted that in the instant application, a rheological modifier comprising an organic phosphate surfactant is disclosed as suitable for use in the invention (see [0030] of the instant specification). As such, the use of the phosphate ester additive of WO ‘530 would inherently result in an anode having the claimed properties.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randell et al. or WO ‘530.

WO ‘530 and Randell et al. are applied for the reasons stated above. However, neither reference expressly teaches that the second electrode comprises at least 60 wt% zinc as recited in claim 12.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use an amount of zinc in the batteries of Randell et al. or WO '530 that falls within the claimed range. Generally, the use of more active material allows for more battery capacity. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

8. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randell et al. or WO '530 in view of Urry (U.S. Patent 6,022,639).

WO '530 and Randell et al. are applied for the reasons stated above. However, neither reference expressly teaches that the zinc electrode comprises flakes, as recited in claims 19-21.

Urry teaches an electrode comprising zinc flakes in the abstract.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Urry to use zinc flakes in the batteries of WO '530 or Randell et al. In column 2, line 23, Urry teaches that "it is desirable to have a zinc anode that enables significantly lower amounts of zinc to be used in the anode, while still maintaining an adequate current carrying matrix while maintaining good conductivity, improved high current discharge efficiency, and solves the problem of shock and vibration sensitivity." Accordingly, the artisan would be

motivated by the disclosure of Urry to use zinc flakes in the batteries of WO '530 or Randell et al.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Randell et al. or WO '530 in view of Durkot et al (U.S. Patent 6,521,378).

WO '530 and Randell et al. are applied for the reasons stated above. However, neither reference expressly teaches that the zinc powder has a bimodal distribution of particle sizes, as recited in claim 23.

Durkot et al. teach a zinc electrode having a bimodal particle distribution in the abstract.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Durkot et al. use a bimodal distribution of zinc powder in the batteries of WO '530 or Randell et al. In column 2, line 53, Durkot et al. teach that this configuration "can provide good cell performance characteristics, especially those characteristics related to high discharge rate performance." Accordingly, the artisan would be motivated by the disclosure of Durkot et al. use a bimodal distribution of zinc powder in the batteries of WO '530 or Randell et al.

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10. Claims 24-33 are rejected under 35 U.S.C. 103(a) as being obvious over Randell et al. or WO 03/73530 in view of Moore et al (U.S. Pre-Grant Publication No. 2005/0106461).

WO '530 and Randell et al. are applied for the reasons stated above. However, neither reference expressly teaches that the zinc powder has the properties recited in claim 24.

Moore et al. is directed to a zinc alkaline cell wherein the zinc has specific values of BET surface area, tap density, KOH adsorption, and D<sub>50</sub>.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the zinc powder of Moore et al. in the batteries of WO '530 or Randell et al. In the abstract, Moore et al. teach that "in one embodiment, the cell's gelled anode incorporates a limited quantity of zinc powder having specific physical characteristics that enable it to discharge efficiently over a wide range of electrical discharge conditions." Accordingly, the artisan would be motivated to use the zinc powder of Moore et al. in the battery of WO '530 or Randell et al.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the



application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1745  
February 9, 2007